CLAIMS

I claim:

1. A method of performing intelligent data pre-staging for a job submitted to a compute environment, the method comprising:

determining availability of compute resources including availability timeframes to process the submitted job;

determining data requirements for processing the job; and determining a co-allocation in time reservation.

- 2. The method of claim 1, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.
- 3. The method of claim 1, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, size, and any issues, you basically have to ramp up the initialize step, a data transfer step, and a prologue step, a termination step which completes the record and verifies the successful transfer of data.
- 4. The method of claim 1, wherein the compute resources must be available prior to the completion of the data staging step.
- 5. The method of claim 1, wherein determining the co-allocation in time reservation further comprises:
 - (1) requesting the resources for the first step in the job process;
- (2) calculating existing resource guarantees and reservations already in place to create an availability range list;
 - (3) converting the availability range list into a start range list;
 - (4) requesting another resource and returning to step (2).
- (5) shifting the start ranges by the offset and performing an intersection operation on the combination start range;
- (6) shifting it back by the negative of the offset the resulting information provides when to start each reservation;
- (7) presenting the final list of possible starting times for a reservation to a user for selection; and

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- (8) upon receiving a user selection of a reservation start time, shifting everything back and reserving he resources for the appropriate start time.
- 6. The method of claim 5, wherein the range list indicates all the availability time frames.
- 7. A system for performing intelligent data pre-staging for a job submitted to a compute environment, the system comprising:

a module configured to determine availability of compute resources including availability timeframes to process the submitted job;

a module configured to determine data requirements for processing the job; and a module configured to determine a co-allocation in time reservation.

- 8. The system of claim 7, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.
- 9. The system of claim 7, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, size, and any issues, you basically have to ramp up the initialize step, a data transfer step, and a prologue step, a termination step which completes the record and verifies the successful transfer of data.
- 10. The system of claim 7, wherein the compute resources must be available prior to the completion of the data staging.
- 11. The system of claim 7, wherein the module configured to determine the co-allocation in time reservation further:
 - (1) requests the resources for the first step in the job process;
- (2) calculates existing resource guarantees and reservations already in place to create an availability range list;
 - (3) converts the availability range list into a start range list;
 - (4) requests another resource and returning to step (2).
- (5) shifts the start ranges by the offset and performing an intersection operation on the combination start range;
- (6) shifts it back by the negative of the offset the resulting information provides when to start each reservation;

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- (7) presents the final list of possible starting times for a reservation to a user for selection; and
- (8) upon receiving a user selection of a reservation start time, shifts everything back and reserving he resources for the appropriate start time.
- 12. The system of claim 11, wherein the range list indicates all the availability time frames.
- 13. A computer-readable medium containing instructions for controlling a computing device to perform intelligent data pre-staging for a job submitted to a compute environment, the instructions comprising:

determining availability of compute resources including availability timeframes to process the submitted job;

determining data requirements for processing the job; and determining a co-allocation in time reservation.

- 14. The computer-readable medium of claim 13, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.
- 15. The computer-readable medium of claim 13, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network, size, and any issues, you basically have to ramp up the initialize step, a data transfer step, and a prologue step, a termination step which completes the record and verifies the successful transfer of data.
- 16. The computer-readable medium of claim 13, wherein the compute resources must be available prior to the completion of the data staging step.
- 17. The computer-readable medium of claim 13, wherein the step of determining the coallocation in time reservation further comprises:
 - (1) requesting the resources for the first step in the job process;
- (2) calculating existing resource guarantees and reservations already in place to create an availability range list;
 - (3) converting the availability range list into a start range list;
 - (4) requesting another resource and returning to step (2).

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- (5) shifting the start ranges by the offset and performing an intersection operation on the combination start range;
- (6) shifting it back by the negative of the offset the resulting information provides when to start each reservation;
- (7) presenting the final list of possible starting times for a reservation to a user for selection; and
- (8) upon receiving a user selection of a reservation start time, shifting everything back and reserving he resources for the appropriate start time.
- 18. The computer-readable medium of claim 17, wherein the range list indicates all the availability time frames.